

ABSTRACT OF THE DISCLOSURE

A positioning system for use in placing a stent at a vascular bifurcation includes an elongated catheter having an inflatable balloon mounted at its distal end. With the balloon deflated, the catheter / balloon assembly is engageable with the stent allowing the stent to be advanced through the vasculature to the bifurcation. At the bifurcation, the balloon can be selectively inflated to release the stent. A plurality of individually activatable, acoustic transducer crystals is mounted on the catheter at the proximal end of the stent. Each crystal can be selectively activated from an extracorporeal location to radiate an acoustic signal that is directed toward a vessel wall where it is reflected, creating an acoustic return signal. The return signal is then received by the respective transmitting crystal and converted to an electrical signal. The electrical signals are then used to determine a spatial relationship between the stent and the bifurcation.